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COCOM DOC. NO. 3996

May 11, 1960

MEMORANDUM FROM THE UNITED STATES DELEGATION

CONCERNING

EXPORT OF COMMUNICATIONS CABLE BY ITALY TO THE SOVIET UNION

1. The United States Delegation refers to COCOM Documents 3951 and 3952, and to the Committee discussion of the proposed Italian expert which was held on April 25. During the course of this discussion (Document No. 3976), the United States Delegate informed the Committee that his delegation would present to the Committee a written statement setting forth the rationale underlying the United States acquiescence in the contemplated export.

2. After close study of the proposed Italian export, with due regard both for the technical characteristics of the cable in question and for the other circumstances put forward by the Italian Government, the United States authorities concluded that the Italian submission satisfied the criteria for a valid ad hoc exception, and that its approval was therefore warranted.

3. Unlike cable for which some other exceptions requests have been submitted (and in certain cases approved), having technical characteristics indicating that the cable was designed or eminently suitable for carrier frequency operation, the Italian cable, in the opinion of United States technical experts, is not of a type suitable for the purposes contemplated by the embargo of Item 1526. The United States experts considered that the Italian cable was not suitable for carrier frequencies.

4. More specifically, the judgment of the United States experts is as follows:

a. The cable is of a type intended for use over relatively short distances (up to perhaps 50 miles) in phantom group operation at voice frequencies (two physical and one phantom circuit per quad).

b. The capacitive imbalance tolerances permitted by the specifications would adversely affect the use of this cable even at voice frequencies. Although the cable could be used in long distance voice frequency applications, such use would require very careful balancing after installation, and would yield a cross talk figure considerably higher than that allowable in United States practice.

c. That the cable is not intended for high-frequency carrier use is further indicated by the absence of any requirement which would minimize the inductive imbalance. While inductive imbalance is not a problem at voice frequencies, it does become an important parameter when the cable is intended for carrier frequencies. Cross talk due to inductive imbalance would be additive to that caused by capacitive imbalances.

3. Attached as an Appendix are recent questions posed by United States delegation and the answers provided by the Italian Delegation.

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APPENDIX

UNITED STATES QUESTIONS AND ITALIAN ANSWERS REGARDING THE TECHNICAL CHARACTERISTICS OF THE ITALIAN CABLE

Q. What are the specifications re tolerances on capacitance imbalance between twinned pairs?

A. Capacitance imbalance is as follows (figures refer to factory lengths of 425 meters):

Between pairs in the same quads:	average 75 and maximum 280 pico farads.
Between pairs of different quads:	average 110 and maximum 200 pico farads.
Between pairs and ground:	average 280 and maximum 1100 pico farads.

Q. Is cable paper and air insulated with quads between pairs or is it solid pulp type?

A. Paper and air insulated.

Q. Are adjacent quads given the same twist or a different twist?

A. The number of different twists is the minimum indispensable for the respect of the capacitance imbalance, so that the same twists are alternatively repeated; i.e. two adjacent quads have different twists but the third has the same twist as the first. This means that for cables of 12 and 27 quads there will be six different twists and for cable of 19 and 37 quads only four different twists different one from the other. It is thus impossible for these cables to be used for carrier frequency.

Q. Does the contract require a test for inductive imbalance?

A. No.

Q. What are the specifications re tolerances on inductive imbalance?

A. There are none.